

## GENERAL / ASSEMBLY OCCUPANCY PLAN CORRECTION LIST

### USE THE SPECIFIC OCCUPANCY CORRECTION LIST IN CONJUNCTION WITH THIS GENERAL / ASSEMBLY CORRECTION LIST

**Plans have been reviewed for compliance with the following:**

- a. International Building Code (excluding Chapters 11 and 27), 2006 edition.
- b. International Fire Code, 2006 edition.
- c. International Mechanical Code, 2006 edition.
- d. NFPA 70, National Electrical Code, 2008 edition.
- e. For public buildings: Tennessee Public Building Accessibility Act, 2010 ADA Standards For Accessible Design.
- f. NFPA 101, Life Safety Code, 2006 edition.

[ a.,b.,c.,f. [Rule 0780-02-02-.01](#) ] [ d. [Rule 0780-02-01-.02](#) ] [ e. [T.C.A 68-120-204](#) ]

Correction lists are not all inclusive. See additional comments on the cover sheet.

**Please Note:** Items listed require correction by revised plans, addenda, field orders, or change orders before plans are approved for construction. Answers in letter form are *not* acceptable. **Starting construction before plans approval may be considered as just cause by the State to issue a stop work order.** [ [Rule 0780-02-03-.02\(1\)](#) ]

NOTE: In order to expedite processing of this project please reference the "TFM NUMBER" & "PROJECT NUMBER" on the transmittal letter when submitting any correspondence, plans, and specifications.

## **Procedures**

1. Provide plans & specifications through the electronic plans submittal portal **or** provide one (1) full size paper copy of plans, one copy of specifications, one pdf copy on a CD accompanied with a letter of certification stating that the pdf copy is an identical copy of the paper copy. All documents to be sealed (with signature and date) by a Tennessee registrant in accordance with the Architects and Engineers Licensing Law Rules. [Rule 0780-02-03-.03, 0780-02-03-.03(b), A&E Rule 0120-02-.08(3)]
2. Project numbers shall be assigned by the Department for buildings separated by structurally independent fire walls and for each building of a multiple building submission.

Each portion of a building separated by one or more **fire walls** that comply with the provisions of IBC 705 shall be considered a **separate building** and as such the submission requirements apply to each building.

Project construction cost shall be stated for each building and all fees shall be calculated using construction cost on a per building basis. [Rule 0780-02-03.04(4)]

3. Buildings must be designed to the minimum State of Tennessee adopted codes and standards. Provide the following code information on the cover sheet of the plans for new and existing buildings:
  - A. IBC International Building Code, 2006 edition (excluding chapters 11 & 27), IFC International Fire Code, 2006 edition, IFGC International Fuel Gas Code, 2006 edition,

IMC International Mechanical Code, 2006 edition, IECC International Energy Conservation Code, 2006 edition (state buildings use ASHRAE Standard 90.1, 2007 edition in lieu of the IECC) [Rule 0780-02-02-.01]

- B. NFPA 101 Life Safety Code, 2006 edition and NFPA 70 National Electrical Code, 2008 edition, published by the National Fire Protection Association [Rule 0780-02-02-.01 & Rule 0780-02-01-.02]
  - C. For public buildings: Tennessee Public Building Accessibility Act,
    - 2010 ADA Standards for Accessible Design.
  - D. Occupancy Group per Chapter 3, IBC, 2006 edition.
  - E. Identify whether there is a proposed change of occupancy for this project indicating what the previous occupancy was along with the proposed occupancies.
  - F. Construction Type, sprinklered or unsprinklered per IBC, Chapter 6, IBC, 2006 edition.
  - G. Number of stories and height of building, IBC, 2006 edition .
  - H. Area of building according to IBC, Table 503, for new and existing areas along with any building area modification calculations per IBC, 506.
4. Provide a brief Scope of Work for the project along with the project's codes analysis on the contract documents (drawings cover page or life safety plan).
5. Provide a Life Safety Plan showing:
- A. Occupant load along with square footage and occupant load factors for each space based on its intended use. [NFPA 101 Table 7.3.1.2, and IBC 1004, Table 1004.1.1]
  - B. Number of occupants exiting the building through exit stairways and exterior exit doors (clear width) according to design as compared to exit capacity of a door or stair system (whichever is more restrictive based on number of people). [NFPA 101 Table 7.3.3.1, 7.2.1.2.1, IBC Table 1005.1 & IFC Table 1005.1]
  - C. Travel distance measurement from most remote space in the building curving around any corners or obstructions with a 12 inch clearance and terminating at an exit. [NFPA 101 7.6.1 thru 7.6.6]
  - D. Provide accessible means of egress to a public way identifying location of any area of refuge and any elevator for unsprinklered buildings. [NFPA 101 7.5.4, IBC 1007]
  - E. Show all fire-resistance rated wall limits for occupancy separations, building compartmentation walls, exit access corridors, stair exit ways, elevator shafts, mechanical system shafts, and separations from hazards such as storage rooms (100 sf or larger), janitor closets, gas furnace rooms, and laboratories.
6. Complete the Plans Review Submittal form (PRSF) and remit the required fee. [Rule 0780-02-03]
7. The fee has been calculated incorrectly. Balance due is \_\_\_\_\_. We are refunding \_\_\_\_\_. The refund process takes approximately 6 to 8 weeks.

8. Information on the plans review submittal is incorrect as follows: \_\_\_\_\_.
9. Code deficiencies cited in the inspection report (dated/requested) \_\_\_\_\_ must be addressed.
10. For state buildings, show compliance with ASHRAE Standard 90.1-2007 by providing documentation using computer software such as the COMcheck software found at <http://www.energycodes.gov/comcheck/download.stm>. (Effective July 1, 2011)

For all other projects show compliance with either the 2006 International Energy Conservation Code or ASHRAE Standard 90.1-2007, by providing documentation using computer software such as the COMcheck software found at <http://www.energycodes.gov/comcheck/download.stm> or by using the "Total Building Performance" method in accordance with IECC 506. (Effective July 1, 2011)

## General

1. Identify use of rooms and spaces on all drawings.
2. Provide design live load values on plans for wind, roof, floor, stairs, guard and hand railings, seismic per IBC 1603.1.5, etc. [IBC1603] Plans shall indicate structural design information per IBC 1603.1 & 1603.1.5. For existing buildings that have **not** been reviewed and approved by our office, provide "as-built" plans from a Tennessee licensed structural engineer **or** an evaluation report sealed, signed, and dated from a Tennessee licensed structural engineer. The evaluation report must show the design live loads for wind, roof, floors, stairs guard, hand railings, and seismic.  
  
(**as-built** plans for this purpose are drawings of existing conditions containing current dated registrant seals, minimum adopted codes and a code analysis demonstrating that the structure meets currently enforced codes)
3. Provide door and door hardware schedule. Show fire ratings for rated assemblies. [IBC 1008.1.8.1 thru 1008.3.2]
4. Provide glazing schedule. Specify size and type of glazing. Indicate location of fire-resistance rated wire glazing or tempered (safety) glazing on door, door frames, and window elevations. [IBC 715.4.6, 2406]
5. Provide interior finish schedule. [NFPA 101 10.2 AND IBC Table 803.5]
6. Provide legend for all smoke or fire-resistance rated wall enclosures to identify specific ratings and their limits (smoke partitions, 1-hr smoke barriers, 1/3, 1/2 or 1 hour fire partitions, 2/3/4 hour fire barriers and 2/3/4 hour fire walls. The **same** wall legend shall be used on **all** contract documents.
7. Show all smoke or fire-resistance ratings on all contract documents up to and including the structural, mechanical, plumbing, electrical, fire protection sprinkler system drawings. The **same** wall legend shall be used on **all** contract documents.
8. Provide a note on the structural design drawings stating that "The pre-engineered metal building for this project must be designed and sealed by a Tennessee registered engineer

and the design loads and seismic design criteria must be equal to or exceed the Tennessee registered structural engineer's stated edition of the building code and project design loads."

9. Provide the entire third party tested assembly details on plans for any fire-resistance rated wall, column, beam, floor/ceiling, roof/ceiling assemblies, fire rated head-of-wall joints, curtain walls, and fire stopping penetrations through fire rated construction. Provide details in their entirety which include design illustrations and material specifications without modification or manipulation (see "Important Information For Users Of This Directory, Use of This Directory" in Volume 1 of the most recent printed Fire Resistance Directory - or - at the bottom of each "record" (i.e., UL system number) on the online certification directory available <http://www.ul.com/global/eng/pages/> for UL's terms and conditions of use).
  - A. Fire Rated Walls, Columns, Beams, Floor/Ceiling and Roof/Ceiling Assemblies. Show what UL or other assembly number is being used for the fire rated walls, floor/ceiling, and roof/ceiling assemblies. [IBC Section 703] Prescriptive fire-resistance rated building elements may be used for existing structures when evaluating and determining fire resistive capacities of existing assemblies. [IBC Section 720]
  - B. Fire Rated Joint Systems. Show what UL or other assembly number is being used for fire rated assembly connections such as wall-to-wall, floor-to-floor, floor-to-wall, head-of-wall, and bottom-of-wall joints where not inherently tight.
  - C. Curtain Wall Joint Systems. Show what UL or other assembly number is being used for perimeter fire containment systems such as unrated curtain wall-to-rated floor assemblies where not inherently tight.
  - D. Fire stopping. Show what UL or other assembly number is being used for tested systems for each size and type of penetrating object such as metallic and nonmetallic electrical, plumbing, HVAC piping and ductwork, fire protection sprinkler system piping, electrical wiring or conduit through fire resistive assemblies. [IBC Section 712 and NFPA 101 8.3.5] Provide plumbing details for toilet, shower, and tub penetrations at 1-hour fire rated floor assemblies and plumbing penetrations within walls when penetrating 1-hour rated floor assemblies.
10. Provide a reflected ceiling plan showing lights, diffusers, exit sign, sprinkler heads, smoke detectors and emergency lights, etc.
11. When any floor surface for human occupancy is more than 75 feet above the lowest level of fire department vehicle access the building is classified as a **HIGH RISE**. [IBC 403.1, NFPA 101, 11.8] (**See the High Rise correction list for additional requirements**).
12. Places of public gathering, such as sports and entertainment arenas, musical amphitheaters, community and convention halls, amusement facilities, fairgrounds, zoos, and specialty event centers in public parks must comply with TCA 68-120-501, et. seq. Women shall have twice as many water closets as the minimum number of water closets or urinals required for men. [Rule 0780-2-18-.03(1)]
13. Provide elevator key lock box mounted at 72" AFF to center of the box by each bank of elevators. The lock box must meet the requirements as specified by the Tennessee Department of Labor and Workforce Development (contact the Division of Boiler & Elevator, Mines, Labor Standards, and Research & Statistics for specifications and details) and be operated by a common key.

- A. University of Tennessee and/or Tennessee Board of Regents residential occupancies containing elevators. [TCA 49-7-136(a)]
- B. Department of General Services' buildings containing elevators. [TCA 4-3-1114(a)]

## Site

1. Show location and footprint of all existing structures, property lines, grade elevations, water mains and other utilities, fire hydrants, fire department access and all ingress/egress to public ways. Include size and location of LP-Gas storage tanks (2004 NFPA 58) and any other above ground storage tanks (2003 NFPA 30 and 30A, IFC 3404, IFC Chapter 22 & 38).
2. Fire apparatus access road must meet the following criteria.
  - A. A fire department access road should be provided so as to extend to within 50 feet of a single exterior door providing access to the interior of the building. [IFC 504.1]
  - B. Extend to within 150 feet of all portions of the building. [IFC 503.1.1]
  - C. Be 20 feet wide with a 13 feet 6 inches minimum vertical clearance. [IFC 503.2.1]
  - D. Dead-ends cannot exceed 150 feet unless an approved turnaround radius is provided. [IFC 503.2.5] The turning radius should be 50 feet. [IFC 503.2.4]
  - E. The grade of the access road should not exceed 1 foot drop in 20 feet unless approved by the local fire code official. [IFC 503.2.7 and 503.1.1, Exception 2.]
3. Fire hydrants providing coverage for buildings must be located such that all exterior portions of the building are within 400 feet measured along vehicle access route unless the building is fully sprinkled or an R3 or U occupancy, in which case it may be extended to 600 feet. [IFC 508.5.1 and exceptions] Some local jurisdictions may require closer spacing.
4. Fire hydrants must have at least a six-inch connection with the main. [2002 NFPA 24 7.1.1 and IFC 508.2.1]
5. Fire hydrants must be properly supported. [2002 NFPA 24 7.3 and IFC 508.2.1]
6. Fire hydrant locations for average conditions must be installed at least 40 feet from the building to be protected. [2002 NFPA 24 7.2.3 and IFC 508.2.1]
7. Fire service mains must not be routed under buildings, unless special protection is provided. [2002 NFPA 24 10.6 and IFC 508.2.1]
8. Where underground water mains and hydrants are to be provided, they must be installed, completed, and in service prior to construction work. [2004 NFPA 241, 8.7.2.3]
9. Provide the following flow test data on the plans for fire hydrant(s) used to meet the 400/600 feet or less hose lay requirement in accordance with the authority having jurisdiction. [2002 NFPA 24 7.2.1] The flow test must have been conducted within **6-months** of the date that

plans are submitted for review and be performed during peak demand hours. Show the flow test data on the plans next to the hydrant tested.

- A. Static pressure \_\_\_\_\_ psi
- B. Residual pressure \_\_\_\_\_ psi (20 psi minimum\*\*)
- C. Flow \_\_\_\_\_ gpm (500 gpm minimum\*\*)
- D. Name and address of party responsible for taking test \_\_\_\_\_
- E. Date test taken: \_\_\_\_\_ (Must be within the last 6-months)
- F. Time test taken: \_\_\_\_\_
- G. Elevation of test hydrant: \_\_\_\_\_

\*\*Department of Environment & Conservation, Rules and Regulations  
1200-05-01-.17 paragraph (18).

- 10. When there are no existing fire hydrants near the building site, provide hydraulic design values for any new proposed site water main(s) and fire hydrant(s). Provide theoretical water supply hydraulic flow (gpm) and residual pressure (psi) design values with preliminary design calculations on the plans furnished by the engineer of record.
- 11. An approved access walkway from the fire apparatus access road to exterior doors and windows shall be provided. [2006 IFC 504.1]
- 12. Show the location of reservoirs, tanks, fire pump house, private fire mains, etc. when local fire water is not available. [2006 IBC 106.1.1, 2006 IFC 508.2]
- 13. Fire hydrants shall:
  - A. Not be obstructed: [2006 IFC 508.5.4]
  - B. Have a minimum clear space circumference of 3 feet. [2006 IFC 508.5.5]
  - C. Be protected by guards when subject to impact by a motor vehicle. [2006 IFC 508.5.6]

## Construction

- 1. Building exceeds allowable area/number of stories/height for this type of construction and open space. [IBC Table 503] Sprinklered buildings must comply with 2002 NFPA 13 to receive allowable building code height, area, and number of stories. [IBC Table 503, 504.2, 506.3, 506.4, 508.3.2, 602.1.1] Show calculations on drawings.
- 2. The fire protection rating for opening protectives in smoke barriers, fire partitions, fire barriers & fire walls shall be in accordance with NFPA 101 Table 8.3.4.2, IBC 715 Tables 715.4 & 715.5.
- 3. A firewall must be 2/3/4-hour fire-resistance rated construction and must be constructed in such a way that the wall will remain standing after the collapse of the structure on either side. [IBC 705.1, 705.2, and Table 705.4] The wall must extend minimum 30 inches above *combustible* roof for vertical continuity. [IBC 705.6; See Exceptions] A firewall must extend



not less than 18 inches horizontally past any *combustible* projection or extension of an exterior wall. [IBC 705.5; See Exceptions]

The project's structural engineer must state on the drawings that: **"This wall is a 2/3/4-hour fire resistant wall which extends continuously from the foundation to (noncombustible) or through (combustible) the roof, with sufficient structural stability under fire conditions to allow collapse of the construction on either side without collapse of the wall."**

Provide details showing how wall is structurally independent at the roof. [IBC 702 Definitions] NFPA 221 6.1\* Pipes, Raceways, and Cables. Pipes, raceways, and cable trays (regardless of size) penetrating fire walls having a required 3-hour or greater fire resistance rating shall be positioned to pass through the wall no more than 3 ft (1.0 m) above the finished floor level.

4. Show on foundation plans and roof details the location and limits of all 2/3/4-hour free standing firewalls. [IBC, 702 Definitions.]
5. Columns, girders, beams, trusses, lintels, floor and roof construction, interior and exterior bearing and nonbearing walls must be protected in accordance with IBC Tables 601 and 602 for Type \_\_\_\_\_ construction. [IBC 704.5 and 714]
6. Show assumed property line between buildings and provide protection of facing walls and openings as per IBC Tables 601, 602 & 704.8. [IBC 704.3, 704.5, 704.8, 702, 1406.2.1.1 & 1406.2.1.2]
7. Construction Type I and II partitions must be constructed of noncombustible materials or of fire retardant treated wood. [IBC 603.1]
8. Foam plastic roof insulation must be separated from the interior of the building by a thermal barrier unless it complies with FM 4450 or UL 1256. [IBC 2603.4, 2603.4.1, and 2603.4.1.5]
9. Draft stopping must be installed in combustible concealed locations such as in floors and attics. [IBC 717.1, 717.3, 717.3.1, and 717.4] Specify material to be used. Openings in the partitions must be protected by self-closing doors with automatic latches. [IBC 717.4.1.1] Ventilation of concealed roof spaces must be maintained. [IBC 717.4 and 1203.2]
10. In combustible construction fireblocking must be installed to cut off both vertical and horizontal concealed draft openings and must form an effective barrier between floors, between a top story and a roof or attic. [IBC 717.2 and 717.2.1]
11. An opening not less than 20 inches by 30 inches must be provided to any attic area having a clear height of 30 inches. [IBC 1209.2, 1209.3]
12. Provide passageways for appliances in concealed spaces (above ceilings & attic area). [IMC 306]
13. Show fire rated occupancy separation between occupancies. [IBC 508 and Tables 508.2, 508.3.3] Tenant separation shall run horizontally and vertically. [IBC 708] Such separation must extend through usable crawl space to the ground below. [IBC 708.4]
14. Fire rated walls must extend tight against the underside of a roof or floor deck or to the underside of a rated smoke tight ceiling which has the same rating as the wall (e.g., two layers of 5/8 inch rated gypsum panels at the ceiling for tenant separation, one hour storage or janitor spaces, and one or two hour rated walls turned horizontally and anchored to the

- walls for corridors, elevator, stair, and breezeway ceilings). [NFPA 101 8.2.2, 8.2.3, 8.2.2.3 & IBC 711.4] Provide details for each ceiling construction used along with related U.L data.
15. Equipment recessed in a fire rated wall must not decrease the rating of the wall. [NFPA 101 8.3.5.6.3 and IBC 712.3.2]
  16. Glazing in 1-hour fire-resistance rated walls must be wired glass or other tested glazing material, in steel frames, no larger than 1296 square inches with no dimension greater than 54 inches. [IBC 715.5, Table 715.5, Table 715.5.3, and 1999 NFPA 80 Chapter 13, NFPA 101 8.3.4 Table 8.3.4.2]
  17. Glazing in non-rated doors, sliding doors, storm doors, within 24 inches of doors, within 18 inches above finished floor, and exceeding 9 square feet within 36 inches of walking surface must be safety glazed, tempered, and pass the test requirements of CPSC 16-CFR, part 1201 and comply with ANSI Z97.1. [IBC 2406.1, .2, 2406.3 (6) & (7)]
  18. Glazing in fire-resistance rated doors must be wired glass or other tested glazing material and must be limited in size according to door rating. [IBC 715.2, 715.4.6, 715.4.4.1 and Table 715.5.3, NFPA 101 8.3.3, 8.3.4 and Table 8.3.4.2]
  19. A chair rail or other visual barrier is required at glass panels that may be mistaken for door. [NFPA 101 7.2.1.1.2 and IBC 1013.1 & 2407]
  20. Specify that fire-resistance rated doors must have fire rated frames, hardware, closers, and other rated accessories. [1999 NFPA 80 1-4 Definition of "Fire Door," 1-6.1, 2-4.7, and IBC 715.4]
  21. Closers and positive latching hardware are required on fire rated doors and doors in smoke partitions or barriers. [NFPA 101 7.2.1.8, 8.3.3.3, 8.4.3.5, 1999 NFPA 80 3-4, and IBC 715.4.7]
  22. Storage rooms 100 square feet or more, janitors closets, boiler rooms, furnace rooms, and all rooms used for storage or hazardous materials must be protected with 1-hour rated fire partitions and 45-minute rated doors **or** be protected by automatic sprinklers with smoke partitions and solid core smoke resistant doors with self-closers and positive latching hardware. [NFPA 101 8.4, 8.7.1, 9.7.1, and IBC 508]
  23. Laundry rooms, maintenance shops, including woodworking and painting areas, spaces where combustible supplies are used or processed, and spaces where hazardous materials or flammable or combustible liquids are used or processed, must be 1-hour enclosed with 45-minute rated doors with self-closers and positive latching hardware **and** must be protected by automatic sprinklers. [NFPA 101 8.7.1, and 9.7.1, IBC 508.2, Table 508.2] See IBC 508.2 for other incidental use areas.
  24. Fuel fired water heaters with an aggregate input that exceeds 400,000 BTU or 210°F, or rooms 100 square feet and greater, must be enclosed in 1-hour rated fire partitions and 45-minute rated door **or** be protected by automatic fire extinguishing system and/or automatic sprinkler system, smoke tight partitions and solid core doors with self-closers and positive latching hardware. [NFPA 101 8.4, 8.7.1, 9.7.1, and IBC 508 Table 508.2]
  25. A shaft that does not extend to or through the underside of the roof deck of the building must be enclosed at the top with construction of the same fire resistance as the top most



floor protected by the shaft, but not less than the rating required for the shaft enclosure. IBC 707 & 716.5.3]

26. Elevator Machine room ventilation. [NFPA 101 9.4.5 and IBC 3006]
27. Elevators, shafts, and machine rooms must be enclosed with one/two hour fire resistance construction. [IBC 707, 707.14, 3002 & 3006]
28. Elevators and dumbwaiter hoist way doors and frames must be labeled. [1999 NFPA 80 Chapter 8-1]
29. Show venting of elevator hoist ways serving four stories or more. [IBC 3004.1]
30. Rubbish chutes, incinerators, and laundry chutes must comply with NFPA 101 9.5, 1999 NFPA 82 and IBC 707.13, 903.2.10.2.
31. Atria must comply with NFPA 101 8.6.7 and IBC 404. Entire building must be sprinklered with smoke control in atrium. [2006 NFPA 92A Smoke-Control Systems Utilizing Barriers and Pressure Differences, 2005 NFPA 92B Smoke Management Systems in Malls, Atria, and Large Spaces, 2002 NFPA 204 Smoke and Heat Venting and IBC 909 Smoke Control Systems] Exhaust fans must be listed to operate for smoke and fire design conditions. [IBC 909.10.1]
  - A. Describe on plans the elements of design (principals of fire dynamics and tenability conditions during the period of occupant egress) for the proper implementation of the smoke control system.
  - B. Provide a narrative for testing protocol and express performance in terms of the measurements and observations that will be performed during final acceptance testing. Testing determines how well actual system performance delivers the design concept.
  - C. Provide an engineering analysis for the proposed smoke control systems used and their methods of operation. [IBC 909.4 and NFPA 101 8.6.7(5)]
  - D. Equipment required to provide smoke control must be connected to a standby power system. [IBC 404.6]
  - E. An engineered smoke control system must be independently activated by the automatic sprinkler system and manual controls that are readily accessible to the fire department. [NFPA 101 8.6.7(6) and IBC 909.12.3] Provide letter from local fire chief accepting location of manual controls.
  - F. The atrium spaces must be separated from adjacent spaces by 1-hour fire barrier rated walls and 20-minute fire-resistance rated opening assemblies or a glass wall forming a smoke partition may be used in lieu of the fire separation wall in fully sprinklered buildings. [NFPA 101 8.6.7(1) (c) and IBC 404.5] Glass walls that are tempered and held in place by gasket system are permitted when sprinkler protection is provided on each side of the wall spaced 72" on center and within 12" from the wall arranged so that the entire surface of the glass is wet upon activation of the sprinklers.
  - G. Doors may not be used in place of air intake louvers for a smoke management system. [Office Policy]

32. Vertical opening connecting three stories or less (mini-atrium) must comply with NFPA 101 8.6.6 (1 through 8).
- A. The communicating space is not an exit. The communicating space may be used as an exit access to reach a lower floor level exterior exit door.
  - B. The communicating space is separated from the remainder of the building by 1-hour fire-resistance rated walls or the communicating space is separated from the remainder of the building by a smoke barrier in fully sprinklered buildings. [NFPA 101 8.6.6(4)(a) and 8.5] Door openings in these walls must have positive latching hardware and door closer and 1/8" clearance for proper operation without door undercuts, louvers, or grilles. [NFPA 101 8.5.3.1]
  - C. As an Equivalency, complete automatic smoke detection systems with proper occupant notification may be substituted for the openness and unobstructed required by 8.6.6(3) for awareness and early warning purposes. A SFMO Request for Equivalency form must be completed and submitted by registrant for approval.
  - D. Each occupant within the communicating space has access to not less than one exit without having to traverse another story within the communicating space. [NFPA 101 8.6.6(7)]
  - E. Each occupant not in the communicating space has access to not less than one exit without having to enter the communicating space. [NFPA 101 8.6.6(8)]
33. Painting Shops not classified as Group H must be 2-hour, **or** 1-hour **and** provide automatic extinguishing system. [IBC Table 508.2]
34. Shaft openings thru a floor/ceiling assembly shall be protected by a shaft enclosure complying with IBC 707 & 707.2.
35. Incinerator rooms must be 2-hour rated and automatic sprinkler system. [IBC 508 Table 508.2, 1015.3 and 1999 NFPA 82]
36. Concession stands must maintain corridor wall rating. Roll-up doors must be activated by smoke detectors. [IBC 715.4.7.3, 715.4.9 and NFPA 101 7.1.3.1, 7.2.1.8] Heat detection is permitted if ambient conditions prohibit installation of smoke detection for the concession space side of the roll-up door opening. [IBC 907.2]
37. A boiler in non-sprinklered buildings must be enclosed with 1-hour resistance rated construction, 45-minute fire rated door with self closers and positive latching hardware. [IBC 508.2.2]
38. Stages exceeding 1,000 square feet, dressing rooms, workshops and storage rooms must be separated from each other by minimum 1-hour fire-resistance rated construction with 45-minute rated door assemblies. [IBC 410.5.2 and NFPA 101 12.4.5.4] Where the stage height is greater than 50 feet, the stage must be separated from these spaces by 2-hour rated construction with 90-minute rated door assembly. [IBC 410.5.1]
39. Regular stages in excess of 1,000 square feet and legitimate stages must be provided with emergency ventilation to provide a means of removing smoke and combustion gases directly to the outside in the event of a fire and must be achieved by one or a combination of the methods specified in NFPA 101 12.4.5.5.1 through 12.4.5.5.3. [IBC 410.3.7 and NFPA 101 12.4.5.5]

40. Legitimate stages and stage height greater than 50 feet must have minimum 2-hour fire-resistance rated proscenium wall. [NFPA 101 12.4.5.6 and IBC 410.3.4]
41. Stages or platforms must be constructed of materials as required for floors including structural supports based on the construction type of the building (see Exceptions). [IBC 410.3.1]
42. Projection room construction must be consistent with building's construction type & meet the requirements of IBC 409 and NFPA 101 12.4.6.

## **Means of Egress**

1. Provide accessible means of egress to a public way incorporating areas of refuge (when required) per IBC 1007 and NFPA 101 7.5.4.
2. Assembly rooms with an occupancy load of 50/500/1000 must have 2/3/4 means of egress. [NFPA 101 7.4.1.1, 7.4.1.2, and IBC 1019.1]
3. Main and secondary exits in assembly areas must accommodate one-half of the occupant load. [IBC 1025.2, .3, NFPA 101 12.2.3.6 (see 12.2.3.6.2 for two-thirds) and 12.2.3.7]
4. Where two exits or exit access doors are required from a building or area, they must be separated by one-half or one-third if sprinklered throughout the diagonal dimension of the building or area served. [IBC 1015.2, NFPA 101 7.5.1.3.2, and .3]
5. Exit stairways must be 1-hour fire-resistance rated construction in building with three or less stories and 2-hour rated in four or more story buildings. [IBC 1020.1 and NFPA 101 7.1.3.2.1]
6. Exit stairway doors must be 1/1½ hour fire-resistance rated and additionally in nonsprinklered buildings must be rated so that the unexposed side does not exceed 450°F. [IBC 715.4.4, Table 715.4, and NFPA 101 8.3.4]
7. Elevators must not open into an exit stairway enclosure. [IBC 1020.1.1 & 3002.7]
8. A fire-resistance rated exit enclosure shall provide a continuous protected path of travel to an exit discharge. [NFPA 101 7.1.3.2.2 & IBC 1024.1]
9. Doors, windows, and openings in exterior walls of an exit enclosure must be protected by a 45-minute fire-resistance assembly when located within ten feet horizontal projection and extending vertically from the ground to a point ten feet above the topmost landing. [IBC 1020.1.4, NFPA 101 7.2.2.5.2, 7.2.2.6.3.2, and 7.2.2.6.4] The stairways must be separated from the interior of the building by one/two-hour fire-resistance rated construction. [IBC 1020.1 and NFPA 101 7.1.3.2]
10. Normally unoccupied spaces and hazardous areas may not open into an exit stairwell or exit passageway. [NFPA 101 7.1.3.2.1(5), 7.2.2.5.3, IBC 1020.1.1, 1021.4 & 1009.5.3]
11. A maximum of 50% of the required number and capacity of exit enclosures may discharge through areas on the level of exit discharge when all of the exceptions are met. [IBC 1024.1 and NFPA 101 7.7.2]

12. One stair must extend to the roof for buildings four or more stories in height above grade plane. [IBC 1009.11]
13. Door swing may not reduce the landing or path of egress travel to less than one-half its required width. [NFPA 101 7.2.1.4.4, IBC 1005.2, 1009.4]
14. Stairs serving upper floors must be separated by a barrier to prevent travel beyond the level of exit discharge. [IBC 1020.1.5]
15. Width of stairs must comply with IBC 1009.1, NFPA 101 7.2.2 & 7.3.3. Exits from an area of refuge in unsprinklered buildings must have a minimum 48 inches between handrails. [NFPA 101 7.2.12.2.3, IBC 1005.1, 1007.3 (2), 1009.1 & 1021.2]
16. Minimum headroom clearance in stair enclosures must be 80 inches. [NFPA 101 7.2.2.2.1 and IBC 1003.3.1, 1008.1.1, 1009.2, 1009.3]
17. Stair treads must be minimum 11 in. and risers must be maximum 7 in. but not less than 4 in. without square nosing and must be designed in accordance with NFPA 101 7.2.2.2.1, 7.2.2.3.3, 7.2.2.3.4, IBC 1009.3, 1009.3.3.
18. A flight of stairs must not have a vertical rise greater than 12 ft between floor levels or landings. [IBC 1009.6]
19. Changes in elevation of less than 21 inches in the means of egress must be by ramp or stair complying with NFPA 101 7.1.7. This includes handrails on both sides of steps, 13-inch treads, and readily visible treads.
20. New handrails must be installed to provide a clearance of not less than 1 ½" between the handrail and the wall to which it is fastened. [IBC 1012.6]
21. Handrails are required on both sides of stairs with extensions and mounted between 34 in. and 38 in. measured vertically to the top of the railing from the top of a stair tread nosing. [NFPA 101 7.2.2.4.1, 7.2.2.4.4, IBC 1009.10, 1012.2.] Guards must be provided at the open side of a means of egress that exceed 30 in. above the floor or grade below. [NFPA 101 7.1.8, 7.2.2.4.5 & IBC 1013] Guards must be mounted not less than 42 in. high (see Exception 7.2.2.4.5.2(2)) and have a maximum 4 in. sphere clearance for intermediate rails at open guards.
22. Rooms containing high-pressure boilers, commercial refrigeration machinery, large transformers or other service equipment subject to possible explosion must not be located directly under, above or adjacent to required exits from an assembly area. [NFPA 101 12.3.2.1.1]
23. Egress must not be through kitchens, storage rooms, closets, or any space identified as a hazardous location. [NFPA 101 7.5.1.6 & IBC 1014.2]
24. Two exit access doorways are required from boiler, incinerator, or furnace rooms which exceed 500 square feet and any fuel fired equipment that exceeds 400,000 BTU input capacity. [IBC 1015.3] Maximum distance of travel to an egress door must not exceed 50 feet in nonsprinklered buildings (see Exceptions). [NFPA 101 7.12]
25. Exit access corridors must not have less than forty four inches (44") of clear width. [IBC 1017.2]

26. Corridor fire-resistance rating must comply with IBC 1017.1 and Table 1017.1, with doors and hardware assemblies in compliance with IBC 715.4 and Table 715.4. See specific occupancy correction list for additional requirements.
27. Fire-resistance rated corridors must be continuous from the point of entry to an exit and must not be interrupted by intervening rooms (see Exception). [IBC 1017.5 and NFPA 101 7.5.1.2]
28. Dead ends in exits and exit access must not exceed 20 feet. [IBC 1017.3] Common path of travel must not exceed 75 feet. [IBC 1014.3]
29. The floor on both sides of any door must be substantially level and may not vary more than ½ inch for a distance at least equal to the width of the widest leaf. [NFPA 101 7.2.1.3.1 and IBC 1008.1.4]
30. Doors opening onto a corridor of minimum required width must swing 180 degrees and not reduce the required corridor width to less than one-half during its swing. [IBC 1005.2 & NFPA 101 7.2.1.4.4]
31. Each leaf of door in the means of egress must provide 32 in. clear opening (see Exceptions) and a minimum height of 6'-8", but in no case must any single door exceed 48 in. [NFPA 101 7.2.1.2.4 & IBC 1008.1.1]
32. Doors serving 50 or more people and stairway doors must swing with the direction of exit travel. [IBC 1008.1.2, NFPA 101, 7.2.1.4.2 & .3]
33. Every room or space with a capacity of 50 or more persons or where travel distance exceeds 75 feet within the room, at least two means of egress must be provided. [IBC 1015.1 Table 1051.1]
34. Provide a door in the folding partition. [NFPA 101 7.2.1.12]
35. Panic hardware is required on all doors with a latch or lock in the means of egress from an area of an assembly having an occupant load of 50 or more. [IBC 1008.1.9] Only approved fire exit hardware shall be used on fire doors. [NFPA 101 7.2.1.7.2]
36. Show that power operated doors are capable of being manually opened to permit exit travel in the event of a power failure. [IBC 1008.1.3.2 & NFPA 101 7.2.1.9]
37. Aisle access ways serving seating within assembly areas must be in accordance with IBC 1025.9, 1025.10, NFPA 101 12.2.5.5, 12.2.5.6.:
  - A. The aisle access way between rows of seating must have a clear width of 12 inches minimum and increases according to row length. [NFPA 101 12.2.5.5.1, 12.2.5.5.2, 12.2.5.5.4, and 12.2.5.5.5]
  - B. Dead-end aisles shall not exceed 20 ft unless exceptions are met. [NFPA 101 12.2.5.6.2]
  - C. The minimum clear width of aisles shall be sufficient to provide egress capacity in accordance with NFPA 101 12.2.3.2 but shall not be less than items (1) thru (6). [NFPA 101 12.2.5.6.3]

- D. Aisle stairs and ramps must meet NFPA 101 12.2.5.6.4.
  - E. Aisle stair treads must not be less than 11 in. [NFPA 101 12.2.5.6.5]
  - F. Aisle stair risers must not be less than 4 in. and must not exceed 8 in. [NFPA 101 12.2.5.6.6(1) & (3)]
  - G. Aisle handrails must meet NFPA 101 12.2.5.6.8.
38. Balcony or mezzanine with a seating capacity of over 50 but not exceeding 100 must have two remote means of egress which are permitted to lead to the floor below. [NFPA 101 12.2.4.6]
39. A balcony or mezzanine having an occupant load of greater than 100 people must have at least two remote exits. [NFPA 101 7.4.1] The required means of egress can not lead to the floor below, but may discharge to a code complying corridor which leads to fire-resistance enclosed stairways within travel distance limitations. [NFPA 101 12.2.4.7]
40. Balcony must have guardrails. [IBC 1025.14]
41. Every assembly area shall have the occupant load posted in a conspicuous place near the main exit of the room. [IBC 1004.3 and NFPA 101 12.7.9.3]
42. Exterior exit access balconies must be separated from the interior of the building by walls and opening protective's as required for corridors unless occupants have a choice of directions when traveling to an exit. [NFPA 101 7.5.3.3]
- Where walls or openings are between the area of assisted rescue and the interior of the building, the building exterior walls within 10 feet horizontally of a nonrated wall or unprotected opening shall have a fire-resistance rating of not less than 1 hour, with opening protectives of not less than ¾ hour. [IBC1007.8]
43. Ramps with a rise greater than 6 inches shall have handrails on both sides. [IBC 1010.8]
44. Where there is an astragal or projecting latch bolt that prevents the inactive door of a pair of doors from closing and latching before the active door closes and latches, a coordinating device shall be used. A coordinating device shall not be required where each door closes and latches independent of the other door. [NFPA 80 2-4.1.1]
45. Astragals and coordinators are required on more than 1½-hour fire rated doors swinging in pairs. [1999 NFPA 80 2-4.7.1 and 3-4.2]
46. Door swinging in pairs and having a fire protection rating of more than 1½ hours shall have an overlapping astragal. [NFPA 80 2-4.7.1]
47. Doors swinging in pairs, where located within a means of egress, shall not be equipped with astragals that inhibit the free use of either leaf. These forces shall be applied at the latch stile to achieve the minimum required width. [NFPA 80 2-4.7.2]
48. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code. [IBC 707.14.1]



49. Where elevators are provided in buildings four or more stories above grade plane or four or more stories below grade plane, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate a 24-inch by 84-inch (610 mm by 1930 mm) ambulance stretcher in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame. [IBC 3002.4]
50. Projection room must have one out swinging, self-closing door not less than 30 inches by 6 feet 8 inches high. [NFPA 101 12.4.6.6]
51. Breezeways (egress balconies) serving 10 people or more must be sprinkled and have 1/2-hour fire-resistance rated construction with 20-minute fire rated glazing and doors with hardware assemblies. [IBC 1002 CORRIDOR, Table 715.4, 1017.1, Table 1017.1] Glazing shall meet the requirements of IBC 715.5

## **Interior**

1. Interior finish in enclosed stairways must be Class A and exit access corridors, lobbies, and classrooms must be Class A or B in nonsprinklered buildings. [NFPA 101 10.2, 10.2.3.4, 10.2.8, IBC 803.1, 803.5, and Table 803.5]
2. Interior finish in general assembly areas with occupant loads of more than 300 must be Class A or B and assembly spaces with 300 or fewer occupants must be Class A, B or C in nonsprinklered buildings. [NFPA 101 12.3.3.3, 10.2.3.4, 10.2.8, and IBC Table 803.5]
3. Fixed or moveable walls and partitions, paneling, wall pads, and crash pads, applied structurally or for decoration, acoustical correction, surface insulation or other purposes, must be Class A or B in nonsprinklered buildings. [NFPA 101 12.3.3.2, 12.3.3.3, 10.2.3.4, 10.2.8, IBC Table 803.5, and NFPA Interpretation]
4. Carpet in corridors, stairs, and lobbies of nonsprinklered buildings must withstand 0.22 watts/cm<sup>2</sup>, Radiant Panel Test (Class II). [IBC 804.4.1]
5. Carpet on walls and ceilings must be Class A. [IBC 803.6]
6. Folding partitions must comply with interior finish requirements. [IBC Section 802]
7. Proscenium curtains on legitimate stages must be 20-minute fire and smoke resistive and must shut automatically upon the detection of smoke. [NFPA 101 12.4.5.7]
8. Screens on which pictures are projected must comply with requirements of Class A or B interior finish. [NFPA 101 12.3.3.4]

## **Mechanical**

1. Penetrations of stairwells such as steam lines, gas lines, water lines, electrical conduit, and duct are prohibited. Only sprinkler piping, standpipes, electrical conduit serving the stairwell and ductwork and other equipment necessary for stair pressurization are permitted. [IBC 1020.1.2 and NFPA 101 7.1.3.2.1(6)]

2. Fire dampers are required where ductwork penetrates a one or more hour fire-resistance rated wall. [IMC 607 & IBC 716.5] Fire dampers may be omitted in 1-hour fire partitions where the duct penetrating the wall is not larger than 100 in<sup>2</sup>, the duct does not terminate at a wall register, steel duct material is 0.0217 in. thick and the duct is located above the ceiling. [IBC 716.5.4 & IMC 607.5.3 exceptions may apply]
3. Ductwork penetrating a fire-resistance rated horizontal assembly such as a floor/ceiling or roof/ceiling assembly must be enclosed within a fire rated shaft: 1-hour up to 3-stories and 2-hours for 4-stories or more. Fire dampers may be used in lieu of a shaft where only one floor is penetrated. [IBC 716.6.1, IMC 607.6.1, 2002 NFPA 90A 5.3.4.1 & 5.3.4.3.1]
4. Ductwork penetrating non-fire rated floor/ceiling horizontal assemblies must be enclosed in a fire rated shaft or be equipped with fire dampers at each floor line where the duct connects no more than 3-stories. [IBC 716.6.3 & IMC 607.6.3]
5. Provide combination fire/smoke dampers in transfer air grille openings through fire rated walls. A smoke damper is required at transfer openings for unrated walls that must resist the passage of smoke such as a smoke partition or smoke barrier. [IBC 716.5, 712.3.3 & IMC 607.5, NFPA 101 8.3.4.1, 8.4.6.2, and 8.5.5.2]
6. Smoke dampers must be installed in duct penetrations of smoke barriers unless the duct is a part of a smoke removal system. [IBC 716.5.5, IMC 607.5.4, NFPA 101 8.5.5.2 & 2002 NFPA 90A 5.3.5]
7. Ceiling dampers or other methods of protecting openings in rated floor/ceiling or roof/ceiling assemblies must comply with the construction details of the tested floor/roof/ceiling assemblies, with listed ceiling air diffusers, or listed ceiling dampers. [IBC 716.6, IMC 607.6, and 2002 NFPA 90A 5.4.4]
8. Where air ducts and openings for air ducts are used in a fire-resistance rated floor/ceiling or roof/ceiling assemblies, all materials and the construction of the assembly including the air duct materials and the size and protection of the openings must conform with the design details of its listing. [2002 NFPA 90A 5.3.3.1]
9. HVAC systems greater than 2,000 cfm must have a duct mounted smoke detector mounted in the return air stream duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances. [IMC 606.2.1] These smoke detectors must be wired to a fire alarm system when one is provided in a constantly attended location for supervisory signals. [IMC 606.4.1] See requirements for buildings not equipped with an approved fire alarm system. NFPA 90A, 6.4.2.1 Smoke detectors listed for use in air distribution systems shall be located as follows:
  - (1) Downstream of the air filters and ahead of any branch connections in air supply systems having a capacity greater than 944 L/sec (2000 ft<sup>3</sup>/min)
  - (2) At each story prior to the connection to a common return and prior to any recirculation or fresh air inlet connection in air return systems having a capacity greater than 7080 L/sec (15,000 ft<sup>3</sup>/min) and serving more than one story
10. HVAC return air riser systems serves two or more stories and serve any portion of a return air system having a design capacity greater than 15,000 cfm must have duct mounted smoke detector shutdown at each story. [IMC 606.2.3] These smoke detectors must be wired to a fire alarm system when one is provided in a constantly attended location for supervisory signals. [IMC 606.4.1] See requirements for buildings not equipped with an approved fire alarm system.

11. Corridors must not serve as supply, return, exhaust, relief, or ventilation air ducts. [IBC 1017.4]
12. Materials exposed to plenum airflow must be noncombustible or limited combustible and have a maximum smoke developed index of 50. [IBC 717.5 & IMC 602.2.1]
13. Provide information showing how combustion air and ventilation are provided for the room containing fuel fired equipment. Show size, free area, location of vents within 12 in. above finished floor and 12 in. below ceiling. [IMC 701.2] Provide corrosion-resistant exterior screen for combustion air openings to the outside. [IMC 710.1 & Table 401.5]
14. Provide commercial kitchen hood ventilation system Design Intent information by a Tennessee registered engineer. See the attached kitchen Hood and Duct Design Intent Ventilation Control and Fire Protection of Commercial Cooking Operations correction list.
15. Gas lines may not penetrate a 2/3/4-hour fire-resistance firewall. The areas are considered separate buildings. [2006 IFGC 409.3.2 & IBC 705.1]
16. Provide exhaust system in janitor closets or other such areas where contaminant sources such as flammable vapors, gases, fumes may be present. [IMC 1203.5]
17. Chimney, vent, or sanitary sewer exhaust outlets within ten feet of fresh air intakes must be at least two feet higher than the intake. [IMC 401.4.1]
18. Dryer ducts must be installed per the equipment manufacturer's instructions or the methods described in IMC 504.
19. Mechanical systems must be designed and installed to resist earthquake forces based on IBC seismic design loads. [IMC 301.15]
20. Fans used in a smoke management system for atria, malls or other large areas, must be listed exhaust fans that operate at design conditions for smoke and fire. The system must meet UL category UUKL.

## **Fire Suppression**

1. Assembly occupancies with more than 300 people must be sprinklered throughout the story containing the assembly occupancy unless they meet the exceptions. [NFPA 101 12.3.5.2 and IBC 903.2.1]
2. All stages greater than 1,000 square feet must be sprinklered including all auxiliary spaces and dressing rooms, storerooms, and workshops (see exceptions). [NFPA 101 12.4.5.10 & IBC 410.6]
3. Provide automatic sprinkler system Design Intent information by a Tennessee registered engineer. See Sprinkler Design Intent correction list for additional requirements.
4. Complete automatic sprinkler system Shop Drawings must be reviewed and approved prior to installation and after a Plans Approval for this building has been issued. Shop drawing information will be a stipulation on the plans upon initial approval of the project and no response is required at this time for this item. [Rule 0780-2-3-.03(2)]

5. A Class I wet standpipe system must be provided in all sprinklered buildings or Class III in nonsprinklered buildings where the highest floor is 30 feet above the lowest level of fire department access. [IBC 905.3.1] A standpipe hose outlet must be located at each intermediate stair landing in all required exit stairways. [IBC 905.4] See the Standpipe Design Intent correction list for additional requirements.
6. Provide a 1½ in. standpipe hose outlet on each side of a legitimate or regular stage (1,000 square feet or more) when the building is fully sprinklered. [IBC 905.3.4 and NFPA 101 12.4.5.12] Provide a Class III standpipe system for nonsprinklered buildings.
7. Provide a fire pump system schematic with all component parts and alarms. [IBC & IFC 913 & 2003 NFPA 20] See the Fire Pump Design Intent correction list for additional requirements.
8. Portable fire extinguishers must be provided. [IFC 906, Table 906.1 & 2002 NFPA 10]
9. In windowless stories in all occupancies an automatic sprinkler system shall be installed in the locations set forth in IBC 903.2.10.1 through 903.2.10.1.3.
10. Other required suppression systems. In addition to the requirements of IBC 903, the provisions indicated in Table 903.2.13 also require the installation of a suppression system for certain buildings and areas.
11. Buildings 55 feet or more in height. An automatic sprinkler system shall be installed throughout buildings with a floor level having an occupant load of 30 or more that is located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access. [IBC 903.2.10.3]

## **Electrical**

1. Provide emergency lighting for assembly areas, stairways, aisles, corridors, exitways, labs, shops, all flexible and open plan buildings and to path of egress travel to a public way (located at the exterior side of all required exterior exit doors). [NFPA 101 7.8, 12.2.9, IBC 1006 and IFC 604.2.4, 605.2, 1006]
2. Emergency lighting must have stand-by power source (NFPA 101 7.9.2, 2008 NFPA 70 Article 700, IBC 1006.3 & IFC 604.2.4, 1006.3) and automatically provide the required illumination in the event of any interruption of normal lighting in areas where emergency lighting is required by IBC 1006.1 and NFPA 101 7.8.
3. Exit signs must be visible from all directions of travel. [NFPA 101 7.10.1.1 and IBC 1011.1] Tactile exit signage must be located at each exit door requiring an exit sign. [NFPA 101 7.10.1.3, IBC 1011.3 & IFC 1011]
4. Exit signs must have an emergency power source or be a listed self-illuminating type sign. [NFPA 101 7.10.4, IBC 1011.5.3, 2008 NFPA 70 700.12(F), IFC 604.2.3, 1011.5.3]
5. Recessed light fixtures in fire-resistance rated ceilings must be protected or be listed for use in a rated assembly. [IBC 712.4.1.2]
6. Provide ground fault interrupters for receptacles in bathroom, garages, and outside. [2008 NFPA 70 210.8]

7. A fire alarm system with an emergency power source is required. [NFPA 101 12.3.4.1, IBC 907.2, 2002 NFPA 72 4.4, IFC 907.2 & 907.5]
  - A. Provide a manual fire alarm initiation system (see Exceptions). [IBC 907.2 & IFC 907.2]
  - B. Provide audible and visible signal alarm notification. [NFPA 101 9.6.3, 9.6.3.5, 2002 NFPA 72 7.5, IBC 907.9 & IFC 907.10]
  - C. Fire alarm occupant notification for assembly occupancies over 300 occupants such as gymnasiums, auditoriums, and cafeterias must be by visual signals and pre-recorded evacuation signal. [NFPA 101 9.6.3.7, 9.6.3.9, 12.3.4.3, 12.3.4.3.4, IBC 907.2.1 and IFC 907.2.1]
  - D. Emergency forces notification is required and must transmit the alarm automatically. [NFPA 101 9.6.4, IBC 907.14 and IFC 907.15]
8. An automatic sprinkler system when installed must be connected to the fire alarm system. [NFPA 101 9.7.2, IBC 903.4 & IFC 903.4]
9. Show the following electrical and fire alarm connections on plans.
  - A. Location of connections of all air handling shutdowns. [IBC 907.11]
  - B. Location of connections to the kitchen hood fire extinguishing system that activates the fire alarm system.
  - C. Location of all connections for required cooking equipment shutdowns such as shunt trip circuit breakers and gas solenoid valves unless a mechanical gas line shut-off is specified.
  - D. Location of flow switch or alarm check valve connection to the general building alarm and central station or fire department.
  - E. Location of supervisory alarm connection from tamper switches on fire protection system control valves.
10. Automatic smoke detection must be provided at each fire alarm control panel (excludes annunciator panels) in areas not continuously occupied that contain controlling equipment. [2002 NFPA 72 4.4.5] Heat detection is permitted if ambient conditions prohibit installation of smoke detection.
11. Smoke detectors controlling hold open devices must be located in accordance with 2002 NFPA 72, 5.14.6. Hold open devices must release in accordance with NFPA 101 7.2.1.8.1 and must be supervised by the fire alarm system. [NFPA 101 9.6.3.2.3, IBC 715.4.7.3 & IFC 703.2.2] Provide details of connections and operation.
12. Smoke-activated doors. Automatic-closing doors installed in the locations listed in IBC 715.4.7.3 shall be automatic closing by the actuation of smoke detectors installed in accordance with IBC 907.10 or by loss of power to the smoke detector or hold-open device. Doors that are automatic closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated. [IBC 715.4.7.3]
13. Provide manual fire alarm pull station(s)/ fire alarm notification(s)/ smoke detectors at \_\_\_\_\_. [NFPA 101 9.6.2.3, 9.6.3 & 9.6.2.10 & IBC 907.3]

14. Provide dBA ratings of all audible notification devices on drawings next to each notification device. [2002 NFPA 72 7.4 and Table A.7.4.2, IBC 907.9.2, and IFC 907.10.2.]
15. Provide the candela (cd) rating of all visible notification devices on drawings next to each signaling device. [2002 NFPA 72 7.5, Table 7.5.4.1.1, IBC 907.9.1 & IFC 907.10.1]
16. Coordinate the location of the manual pull station for activating the kitchen fire extinguishing system (manual pull station shall be located along the path of egress). [2004 NFPA 96 10.5, IBC 904.11.1 & IFC 904.11.1]
17. A zoning indicator panel and the associated controls shall be provided in an approved location. The visual zone indication shall lock in until the system is reset and shall not be canceled by the operation of an audible alarm-silencing switch. IBC 907.8.1 and IFC 907.9.1]
18. Each floor must be zoned separately and no zone may exceed 22,500 square feet for the fire alarm system in non-sprinklered buildings. [IBC 907.8 & IFC 907.9]
19. Where the emergency generator is used for back-up power, it must provide power within 10 seconds. [NFPA 101 7.9.1.3 & 2008 NFPA 70 700.12]
20. The fire alarm control panel or an annunciating device must be located in an area where trouble signals can be monitored (audibly and visually). [2002 NFPA 72 4.4.3.5, 4.4.6] This is to be distinguished from a general alarm system.
21. Provide note on drawings stating the following: "All required documentation regarding the design of fire detection, alarm, and communications systems and the procedures for maintenance, inspection, and testing of fire detection, alarm, and communications systems shall be maintained at an approved, secured location for the life of the system." [NFPA 101 9.6.1.9 and IFC 901.6.2.1]
22. The Fire Alarm Control Panel circuit disconnecting means shall have a red marking, shall be accessible only to authorized personnel, and shall be identified as "FIRE ALARM CIRCUIT." The location of the circuit disconnecting means shall be permanently identified at the fire alarm control unit. [2002 NFPA 72 4.4.1.4.2.2 and 4.4.1.4.2.3]
23. Electrical outlet boxes located on opposite sides of rated walls must be separated by a horizontal distance of 24 in. [IBC 712.3.2 & IFC 703.1]
24. Provide balanced electrical panel load schedules. [2008 NFPA 70 Article 220]
25. Provide a minimum 3 ft horizontal, 6½ ft vertical, and 30 in. width working space in front of electrical equipment. [2008 NFPA 70 110.26(A)(1-3), Table 110.26(A)(1) and IFC 605.3] Working spaces may not be used for storage and may not contain ductwork, piping, etc.
26. There must be one entrance not less than 32 in. wide and 6½ ft high at each end of the working space for electrical equipment rated for 1,200 amperes or more and 6 ft (1.8m) wide containing over current devices, switching devices, or control devices. [2008 NFPA 70 110.26(C)(2) and NFPA 101 7.2.1.2.4]

Both entrances shall open in the direction of the egress and be equipped with panic bars, pressure plates, or other devices that are normally latched but open under simple pressure.



27. Dry-type transformer installed indoors and rated 112½ KVA or less must have a separation of at least 12 in. from combustible material unless separated from the combustible material by a fire-resistant, heat-insulated barrier. [2008 NFPA 70 450.21(A)]
28. Individual dry-type transformers of more than 112½ KVA rating must be installed in a transformer room of minimum 1-hour fire-resistance construction unless specified otherwise. [2008 NFPA 70 450.21(B)]
29. Unless otherwise required by the authority having jurisdiction, only the elevator lobby, elevator hoist ways, and the elevator machine room smoke detectors or other automatic fire detection as permitted by 2002 NFPA 72 6.15.3.7 shall be used to recall elevators for fire fighters' service. [2002 NFPA 72 6.15.3.3]